

**YELLOWKNIFE GOLD PROJECT
DEVELOPER'S ASSESSMENT REPORT
(MVEIRB FILE: EA 0809-003)**

SUBMITTED TO:

MACKENZIE VALLEY ENVIRONMENTAL IMPACT REVIEW BOARD

SUBMITTED BY:

TYHEE NWT CORP

April 2011



PLAIN ENGLISH SUMMARY

Tyhee Gold Corp is a publicly traded mining Company engaged in the exploration and development of mineral properties in North America and internationally. Tyhee NWT Corp (Tyhee) is a wholly owned subsidiary of Tyhee Gold Corp. Tyhee NWT Corp will be the operator of the Yellowknife Gold Project (YGP), located approximately 88 km north of Yellowknife, NT, near the historic Discovery Mine.

1. Development Description**Proposed Mine Plan**

Mining operations at the YGP will consist of two separate mining locations, Ormsby where the major mine infrastructure will be located, and Nicholas Lake located approximately 9 km to the northeast. The Ormsby site will host a conventional open pit followed by an underground operation. The Nicholas Lake site will host an underground operation. The expected mine life is 7.5 years.

The present road layout at the site will be used and additional roads developed to provide access to the surface facilities. The YGP is accessible by road on a seasonal basis via an existing 55 km winter road starting at Prosperous Lake, approximately 20 km NE of Yellowknife. Tyhee NWT Corp has used this seasonal winter road in the past and will continue to use this winter road to move equipment and supplies for exploration activities, construction and operation of the YGP.

Access to Nicholas Lake and the transport of ore to the Ormsby processing facility will be by winter road, however; an all-season road approximately 9 km long may be considered as an alternative mode of transportation following further economic evaluation. The necessary biophysical information has been collected and is included in this Developer's Assessment Report (DAR) should the all-season road be constructed.

Project Schedule

Engineering studies are expected to be completed by the second quarter of 2012. Plant construction is scheduled to begin in the winter of 2014 and be completed by late 2015, with plant commissioning shortly after completion of construction. Site facilities such as power supply, waste disposal facilities, camp, fuel supply, explosive magazines, offices, warehouse and shops and associated surface facilities are expected to be constructed during this period.

Pre-production mine development is scheduled to begin in the winter of 2014 and be completed in about 4 months. Initial mining will commence prior to the mill being commissioned so that sufficient ore will be available for the commissioning and continued operation of the mill.

It is expected that the Yellowknife Gold Project will be at full production by late 2015.

2. Community Engagement

Throughout the baseline data collection programs, there has been a concerted effort to keep the public, affected First Nations and regulators informed of the project and the development activities. This has included meetings with the Yellowknife Dene Chiefs and their Land and Environment Committee, meetings with the North Slave Métis Alliance Land and Environment Committee, the NWT Métis Nation and the regulators Mineral Development Advisory Group (MDAG). Information packages on the field activities and seasonal work updates have also been provided to First Nations and regulators.

When meeting in the communities all arrangements have been made through the Land and Environment staff and in some cases they were the only participants in the discussion, which included project updates and permit renewal applications where applicable. With the above in mind, Tyhee NWT Corp focussed on the following groups:

Yellowknives Dene First Nation (YKDFN) - Dettah
PO Box 2514
Yellowknife, NT X1A 2P8
(867) 873-4307

Yellowknives Dene First Nation – N'dilo
Yellowknives Land and Environment Committee
PO Box 2514 – Orah Tili
Yellowknife, NT X1A 2P8
(867) 873-8951

North Slave Métis Alliance (NSMS)
4916 – 49 Street
Yellowknife, NT X1A 2N3
(867) 873-9176

Additional communities and focus groups were involved in discussions with Tyhee NWT Corp regarding the Project. The details regarding all community engagement activities are provided in Section 5.0 of the Developer's Assessment Report. To date, no issues have been raised that cannot be dealt with during the design phase of the project. Consultation will continue throughout the construction and life of the project.

3. Impacts on Valued Components

An assessment of the potential environmental effects indicates that the development of the YGP will meet all applicable federal and territorial environmental regulations and guidelines including:

- Fisheries Act, Metal Mining Effluent Regulation, No Net Loss Policy and Schedule II listing.
- Environmental Protection Act.
- GNWT Guideline for Dust Suppression.
- Guideline for Ambient Air Quality Standards in the Northwest Territories.

The MVEIRB (2009) indicated that the following items were to be given special consideration by Tyhee NWT Corp in the DAR:

- All water quality and quantity issues related to the Development.
- Impacts on Species at Risk Act (SARA)-listed species frequenting the area.
- Employment, training and business opportunities for local residents and aboriginal groups.

The assessment of potential effects for each environmental component begins with a review of the main project activities that could cause environmental disturbances during each of the three primary phases of activity (construction, operation, closure/reclamation) associated with the YGP.

Water Quality and Quantity

The Ormsby component of the YGP development is expected to have only a localized effect on surface flow patterns and volumes within the Narrow Lake drainage. The current hydrological regime in the YGP shows that water flows from Round Lake to Winter Lake, which then flows to Narrow Lake. Water then flows from Narrow Lake southwest to Morris Lake, then Goodwin Lake, Johnstone Lake, Clan Lake, and the Yellowknife River via numerous small lakes, ponds, and wetlands. The Narrow Lake drainage basin is $\sim 9.3 \text{ km}^2$ in area, or approximately 0.06% of the Yellowknife River watershed ($\sim 15,000 \text{ km}^2$).

The south basin of Winter Lake will be converted into the Tailings Containment Area for the YGP; whereas the north basin will be drained to support the development of the Ormsby open pit. Surface water from Round Lake will be directed into the proposed Winter Lake Tailings Containment Area (TCA). All process tailings from the TCA will be pumped to and contained in the TCA, and water from the TCA will be reclaimed and pumped back to the processing plant to the maximum extent possible. When reclaimed water does not meet the overall process demand, makeup water will be pumped from Giauque Lake. Because of the size and depth of Giauque Lake, the amount of water taken from it will not affect lake levels.

Excess water in the TCA that cannot be reclaimed will be discharged into the natural drainage channel from Winter Lake into Narrow Lake. The quantity of water reaching Narrow Lake will be regulated to match seasonal flows as much as possible. This means that much more water will be released after ice-out in the spring and then flows will be reduced to lower levels in summer before increasing again just before freeze-up.

Water discharged from the TCA will meet the standards set out in the Metal Mining Effluent Regulations (MMER). Frequent monitoring of water quality will be done according to the Water License and the requirements of the MMER. This water quality monitoring at the discharge point and downstream will be used to demonstrate that there are no harmful effects on water quality. If levels of certain metals in the TCA discharge water are found to exceed MMER discharge criteria, treatment measures will be implemented to reduce the levels of these contaminants before water is discharged from the TCA, thereby ensuring compliance with the MMER.

Water withdrawal from Nicholas Lake will be limited to camp and mining use and there will be no discharge of any effluent into Nicholas Lake expected at this time from activities at Nicholas Lake. All water pumped from the underground mine workings at the Nicholas mine

site will be pumped to a settling pond, monitored and if acceptable, discharged through a series of wetlands and very small ponds before reaching Eclipse Lake. No effect on water quality in Eclipse Lake is expected since water discharged from the settling pond will meet MMER standards.

Locally Harvested Fish and Wildlife

Tyhee NWT Corp is aware that traditional harvesting activities, such as hunting, trapping, and fishing, have occurred within the YGP area. Wildlife species hunted and trapped in the area include: caribou, marten, wolverine, waterfowl and bear. Whitefish and pickerel are the main fish species harvested in the YGP area. Baseline fisheries studies have shown that Winter Lake is not extensively used by fish as it freezes to the bottom for most of the lake, with the exception of two main areas located in the north basin. Baseline studies during winter conditions have also shown that dissolved oxygen in the water; a life necessity for fish, is extremely low. This means that overwintering of fish in Winter Lake is not possible.

Based on studies conducted over several years, it was concluded that there are no significant populations of fish in Winter Lake. In contrast, baseline studies have shown that Narrow Lake supports a healthy population of whitefish and northern pike, as well as small bait fish such as sculpins. No effects on these fish populations are expected from operation at the YGP and monitoring of Narrow Lake is expected to be included in the YGP water license. In addition, as part of requirements under the MMER, fish will periodically be tested so fish health is maintained and pose no threat to human consumption, should any harvesting activities occur in Narrow Lake.

The area of the proposed YGP is accessible during winter, using the existing winter road. During summer, YGP is accessible by fixed wing aircraft. The winter road has been in operation for several decades, used for leisure activities, mining operations, and hunting and trapping activities. The winter road is not anticipated to affect access to fish or wildlife harvesting. The Traditional Knowledge collected from the NSMA and the YKDFN did not identify a change in wildlife harvesting, either the quantity or quality of harvest, during the period of time that the winter road is in operation; therefore, it is not anticipated that the winter road will affect wildlife harvesting.

Barren-ground Caribou

Barren-ground caribou from the Bathurst herd are a significant resource for the people of the NWT and Nunavut, both socially and culturally. The winter period is the only time of year when Bathurst caribou may be present in the YGP area. The YGP lies within the Bathurst herd's winter range; however, it is outside known important migration corridors. Therefore, the YGP is not anticipated to block migratory routes or confuse migrating caribou.

To minimize any potential for direct YGP development-related caribou mortality, Tyhee NWT Corp will implement a no hunting policy for all project employees and contractors while working on-site. In addition, the company will require all project-related transportation activities to give the right-of-way to any wildlife, including caribou that such activities may encounter. Tyhee NWT Corp will also encourage participation in reporting all vehicle-wildlife incidents.

Due to the Bathurst Caribou herd's large winter range and infrequent occurrence in the YGP area, quality forage and travel habitats lost due to the construction of the mine is predicted to be negligible. It is expected that a wildlife monitoring program will be developed in consultation with appropriate NWT government agencies and communities and implemented during construction, operation, and closure/reclamation phases to assess possible effects on local wildlife abundance and distribution.

Employment and Business Opportunities

The maximum total mine workforce to be employed is estimated at 326 persons. General and administration personnel inclusive of the General Manager are estimated at 9 persons. Other support staff includes health and safety, environmental, warehousing and camp workers and is estimated at 40 persons. Owner-operated mining and associated operations manpower requirements are estimated at 245 persons. The crew will need to take care of all mining, equipment maintenance, road maintenance, crusher feeding, and waste dump operations. Process operating plant, laboratory and maintenance personnel are estimated at 31 persons. It is anticipated that the mine will operate 350 days per year and the process plant 365 days per year. Shut-downs will occur from time to time for maintenance.

The development of the Yellowknife Gold Project is expected to provide significant new employment and business benefits, especially for the communities nearest to the mine, the Northwest Territories and Canada.

CONCORDANCE TABLE

ToR Section	Information Requested by the MVEIRB (ToR and Work Plan issued May 25, 2009)	DAR Section
A-1	Non Technical Summary: A plain language summary in South Slavey, Chipewyan and English	(p. i)
A-2	Concordance Table	(p. vi-xvii)
3.2	GENERAL INFORMATION REQUIREMENTS	
3.2.1	Existing Environment and Baseline Conditions	2.0
	1. Surface and groundwater quality, reflecting the range of natural variability in the existing environment. This will provide baseline information in order to differentiate project effects from natural conditions and changes due to previous developments. This includes:	2.9, 2.10; Appendix C
	a. water quality analysis for any water bodies (including Round Lake, Winter Lake, Narrow Lake and Giauque Lake) that previous development may have affected in order to identify the extent of previous contamination	2.9; Appendix C
	b. detailed characterizations of representative control lakes that have not been affected by previous development, with rationales for the control water bodies selected	2.9; Appendix C (2004 Report)
	c. water quality analyses for any water bodies near proposed mine-related components	2.9
	2. Topographical maps to indicate the direction of surface and sub-surface watershed flows from the proposed development's basin to the Yellowknife River.	Figures 2.8-1, 2.8-2, 2.10.4, 2.10.5, 4.1-1, 4.1-2, 6.2-2
	3. A water balance that incorporates inflows to and outflows from the mine site, with particular emphasis on the Winter Lake System (including Round Lake, Winter Lake and Narrow Lake) or other tailings facility alternatives, and that also accounts for seasonal variations and peak-flow periods such as during the spring freshet.	4.13.1
	4. Sub-surface geology and local seismicity.	4.4
	5. Aquatic organisms and aquatic habitat in all potentially affected water bodies and in control lakes.	2.11; Appendix D
	6. Wildlife and wildlife habitat, including usage of eskers by wildlife.	2.12, 2.12.1.8; Appendix E
	7. Local air quality (including consideration of seasonal variability).	2.5; Appendix B
	8. Local permafrost distribution and stability.	2.6.3
	9. Physical and chemical makeup of soils and lake sediments for potentially affected lakes including Giauque Lake, and control lakes.	2.6.2, 2.11
	10. Distribution and abundance of any rare plants within the study area.	2.7.3; Appendix A
	11. Local and regional labour pool and business community available to provide employment, goods and services at the proposed Yellowknife Gold Project, relative to the labour pool and business capacity of the Mackenzie Valley. Include a focus on local small communities, Yellowknife, and the North Slave and Tlicho regions.	3.0; Appendix G
	12. Existing physical infrastructure in the study area. Include roads (winter and all-season), buildings, the developer's exploration facilities, and historic mining infrastructure and other industrial works.	4.2, 4.2.4, 4.14

	13. Current socio-economic conditions and relevant trends in the potentially-affected communities, using appropriate indicators.	3.0; Appendix G
	14. Historic and present land use in the study area. Include identification of traditional land use groups and a description of any areas where overlapping land-usage occurs.	2.2, 3.8.1, 3.8.2; Appendix F
	15. Cultural and heritage resources within the study area. Include an identification of the cultural groups who associate with these resources.	3.7, 3.8; Appendix F
3.2.2	Development Description	4.0
	1. Tailings area plans, including information on the following:	4.12
	a. designs for the tailings facilities	4.12.2
	b. a water balance (inflow and outflow) for the impoundment area(s)	4.12.3, 4.13.1
	c. geological, geotechnical and geothermal analyses	4.3.2, 4.3.4, 4.4, 4.5, 4.12.4
	2. Potential effects of the proposed YGP on water quality downstream of the proposed Tailings Containment Area, the proposed Ormsby and Nicholas Lake developments. This will include a tailings input-output analysis, which will include:	6.2.1, 6.3.3.3
	a. an Effluent Management Plan describing the steps the developer will take for treating effluent prior to discharge into the Tailings Containment Area (TCA) and from the TCA	4.11.7, 4.11.8
	b. pre- and post-treatment effluent quality and quantity prior to discharge into the TCA and from the TCA	6.2.1.3
	3. Existing airstrip modifications, with geotechnical engineering plans that verify the stability of such changes against the frequency and types of aircraft that will likely use the airstrip.	4.14.1.6; Appendix M
	4. Project infrastructure, including descriptions of infrastructure and proposed mine development plans for both the Nicholas and Ormsby deposits.	4.7, 4.8, 4.11, 4.12, 4.14
	5. Geochemical analysis for aggregate/crush, including estimated volumes and propensities towards acid rock drainage/metal-leaching.	4.12.9; Appendix H
	6. Waste-rock/ore storage areas, for the proposed ore, waste rock, soil and overburden storage facilities with focus on the locations, with relevant quantitative threshold separation criteria, where the Developer will place any acid-producing or metal-leaching material, as well as the projected volumes for such material.	4.12.7-4.12.9
	7. Conceptual domestic/industrial/hazardous waste management plans, (non-waste-rock material), the locations, and descriptions of hazardous and non-hazardous waste facilities, with particular attention to the volume of material that the developer will process in these facilities.	4.12.10
	8. Water management structures, including a prediction for the volume of water that such structures will manage, and data supporting the ability for these structures to manage sudden, high-volume flow events such as freshet and storm runoff.	4.13; Appendix P
	9. Water treatment facilities, with location and description.	4.14.1.9, 4.14.2.7
	10. Dewatering/drawing-down schedule.	4.12.3, 4.13, 6.2.1.1
	11. Storage and disposal strategies and annual volumes for all chemicals or other reagents for the milling process.	4.11.9, 4.12.10, 4.14.1.10

	12. Winter/all-season road designs for Ormsby and Nicholas Lake, for existing or potential all-season or seasonal roads that will support the proposed project.	4.3.1, 4.5.1, 4.14.1.7, 4.14.1.8, 4.14.2.5, 4.14.2.6
	13. Water intake infrastructure plans, at Giauque and Nicholas Lake, including contingency plans if the re-suspension of historic tailings in Giauque Lake becomes a problem.	4.14.1.9, 4.14.2.7
	14. Power generation infrastructure, and transmission line rights-of-way.	4.14.1.1, 4.14.2.1
	15. Explosives storage facility design, describing the types of explosive(s) the developer will use, storage, handling and application procedures, including a description for how the developer will prevent the contamination problems that other mines have experienced with similar compounds.	4.14.1.5, 4.14.2.4
	16. Truck loads and incoming/outgoing weights, for all phases from construction to closure, by annual winter road season.	4.5, 4.14.1.7, 4.14.1.8, 4.14.2.5, 4.14.2.6
	17. Updated project lifespan estimate, of the proposed Yellowknife Gold Project, divided into the following project phases: construction; operation; closure and reclamation.	4.7, 4.8, 4.9
	18. Updated direct person-years of employment estimated by project phase (construction, operation, etc.).	4.15
	19. Updated work schedule, with transportation arrangements and the developer's proposed worker and employee housing plans.	4.14.1.2, 4.14.2.2, 4.15
	20. Preventive measures, to prevent adverse effects to remediated (Discovery Mine) areas.	6.3.3.5
3.2.3	Community Engagement	5.0
	1. Public engagement events, dates, discussion topics, and the individuals and organizations that the developer has consulted, as well as:	5.4
	a. methods used to identify, inform and solicit input from potentially-affected parties	5.1
	b. commitments and agreements made in response to issues that the public raised during these consultations, and how these commitments altered the planning of the proposed YGP	5.5
	c. outstanding issues that remain, and document any further efforts towards resolution that either parties make	5.6
3.3	BIOPHYSICAL ENVIRONMENT	6.0
3.3.1	KEY LINE OF INQUIRY: Mine Site Water Quality	6.2.1.2
	1. Downstream concentrations of residual cyanide, its breakdown products (for example ammonia) and derivatives that may form with metals in the ore other than gold. Describe potential for copper cyanide-complexes, and lead from the mineral galena. Describe any predicted effects from these substances and indicate the relevant management strategies.	6.2.1.2; Appendix J
	2. The extent of chemical loading and dispersion into the receiving environment by effluent from the Tailings Containment Area and the Nicholas Lake activities, both during mine operation and after closure. Describe whether and how predictions are supported by effluent modeling.	6.2.1.2; Appendix J
	3. The potential effect of YGP operations on contaminants concentrations in the sediments downstream of the proposed Ormsby and Nicholas Lake developments.	6.2.1.2, 6.2.1.3

	4. A comprehensive plan for water quality monitoring, evaluation and management that indicates how the developer will meet water quality objectives prior to discharge, including:	6.8.2.2
	a. a plan to monitor, evaluate and manage the aquatic environment that will integrate water quality and quantity, fish and aquatic habitat monitoring	6.8.2.2
	b. an adaptive management strategy to mitigate adverse impacts to water quality, quantity, aquatic organisms and aquatic habitat	6.8.2.2
	c. a description of how the developer incorporated traditional knowledge and community input in the development of these programs	7.3
	5. The effects of YGP operations on the local hydrology and water balance, which will include predicted changes in timing, volume and deviation of peak and minimum water flows resulting from the proposed development, and effects on water balance from the operation of the TCA.	4.13, 6.2.1.2, 6.3.3.2; Appendix P
	6. The effects of the proposed development on the promotion of acid rock drainage and metal leaching, including a plan for its monitoring, evaluation and management. The plan will include:	4.12.9; Appendix H
	a. a discussion of all results of testing for metal leaching and acid rock drainage from tailings, waste rock and low grade ore that YGP operations will generate, with their implications on water quality	4.12.9; Appendix H
	b. a plan for the identification, segregation, management and disposal of rock with potential for metal leaching and acid rock drainage	6.8.1.6; Appendix H
	7. Describe the probability of tailings in Winter Lake oxidizing and causing acid rock drainage or metal-leaching effects within any tailings containment facility, and appropriate mitigations.	4.12.9.1
	8. Identify the potential impacts on the Yellowknife River basin downstream of the proposed development, with particular emphasis on effects to the City of Yellowknife's drinking water quality, and the need for establishing remote water quality monitoring points.	6.2.1, 6.3.2, 6.3.3
	9. Explain the potential impacts on groundwater flows, including plans for managing and mitigating any adverse impacts these effects may cause. Describe and quantify the influence and impacts of underground workings on groundwater flows for both the proposed Ormsby and Nicholas Lake developments in addition to mitigation strategies for such effects.	6.2.2
	10. Describe the potential impacts of mine water discharge from the proposed Ormsby and Nicholas Lake developments, which will include:	6.3.3
	a. quality and quantity of mine water discharged from mine workings	6.2.1.1, 6.2.1.2
	b. mine de-watering effects on the hydrology, groundwater flows and chemistry of the local study area	6.2.1.1
	c. the particular effects of introducing any de-watering effluent into any waterbody, and the mitigation strategies for preventing adverse effects to those and downstream water bodies	6.2.1.2
	d. post-closure effects of all mine workings on the surrounding ground water regime	6.2.2
	11. Indicate whether erosion and sedimentation will occur as well as mitigation measures and contingency plans to address such problems.	6.3.2
	12. Identify potential impacts to water quality if continued use of the existing airstrip damages the tailings cap at the Discovery Mine site.	6.3.3.5

	13. Identify the potential impacts of drawing water from Nicholas Lake and Giauque Lake, for any purpose, and the mitigation strategies for preventing adverse effects. Include probability of re-suspending contaminated tailings currently capped by the water cover that Giauque Lake provides.	6.3.3.4
	14. Set out the potential impacts to water quality from each project component.	6.2.1.2
3.3.2	Fish and Aquatic Habitat	6.3
	1. Commitments for minimizing loss of fish habitat.	6.3
	2. The downstream effects of all effluents originating from YGP operations on aquatic organisms and their habitat, including:	6.3.2
	a. productive capacity of aquatic ecosystems, with particular reference to species of fish that are important for recreational or subsistence purposes	6.2.1.2
	b. rare and or sensitive aquatic organisms and habitats	6.3.2
	c. impacts from blasting (the developer is encouraged to refer to the following DFO website: http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/water-eau/explosives-explosifs/page03_e.asp)	Table 6.3-3
	d. increased sedimentation in watercourses, especially from the waste rock pile and winter road activities	Table 6.3-3, 6.3.3
	e. erosion	Table 6.3-3, 6.3.3
	3. A description and quantification of any adverse effects to downstream aquatic habitat resulting from the removal of water flows from Winter Lake, with particular focus on the productive capacity of downstream inflow areas.	6.3.3.2
	4. The effects of YGP operations on Giauque Lake's aquatic organisms and habitat which will include:	6.3.3.4
	a. the effects of freshwater withdrawal on Giauque Lake's over-wintering habitat, littoral habitat and oxygen concentration	6.3.3.4
	b. the effects of the freshwater intake and supporting infrastructure footprint	6.3.3.4
	5. The effects of road development, including water crossings, on any potentially impacted water bodies or watercourses, aquatic organisms and habitat.	6.3.3.5
	6. The potential effects of YGP operations on contaminants concentrations in fish.	6.2.1.2
	7. The effects of YGP operations on the aquatic organisms and habitat of Nicholas Lake.	6.3.3.3
	8. The effects of fresh water withdrawal from Nicholas Lake for mining and camp purposes on aquatic habitat and organisms.	6.3.2, 6.3.3.3
	9. Identification of best management practices to minimize impacts on fish in this type of environment, a listing of all commitments to mitigate impacts on fish, fish habitat and other aspects of the aquatic ecosystem, and, where the two differ, a rationale for why certain management practices have not been adopted.	6.3, Table 6.3-3
3.3.3	Wildlife and Wildlife Habitat	6.6
	The proposed development will be an artificial feature of the environment that may affect local and migratory wildlife in a number of ways. The developer is required to provide:	6.6.1
	1. A list of all wildlife species that the proposed Yellowknife Gold Project may impact, highlighting keystone species.	6.6.1, 6.6.2

	2. Predictions of potential impacts to those species in (1) using the impact prediction criteria in the General Considerations section.	6.6
	3. An investigation into potential impacts of the proposed development on the Bathurst Caribou herd (adult population, adult survivorship, and potential herd recovery effects of more hunting) and moose populations.	6.6.1.1
	4. A Conceptual Wildlife Monitoring and Management Plan that incorporates furbearers, migratory birds, waterfowl, large ruminants, and large carnivores. The Review Board encourages the developer to consult with the Department of Environment and Natural Resources, GNWT to create an appropriate wildlife monitoring and management program:	6.6.3
	a. conceptual wildlife monitoring plans for wildlife [from (1)] in the vicinity of the YGP that especially outline what effects the mine causes and what effects are part of the natural environment, with specific attention to how the developer will accommodate any rare, threatened or endangered species listed on the Species At Risk Act or under the auspices of the Committee on the Status of Endangered Wildlife in Canada	6.6.3
	b. conceptual adaptive management measures to avoid, minimize, and mitigate effects to wildlife if the developer detects problems for wildlife that the development has or may have caused	6.6.1.6, 6.6.2.4
	5. The developer's proposed strategies for restricting wildlife access to any project component that may threaten the ability of wildlife to thrive in the area, including open pits, toxic tailings facilities, roads and airstrips.	6.6.1.6, 6.6.2.4
	6. A determination of whether or not the proposed project may block migratory routes or confuse migratory animals and what mitigation strategies the developer will implement to avoid adverse impacts to such wildlife.	6.6.1
3.3.4	Vegetation	6.5
	1. The type, extent and reach of impacts to local plant communities and rare or highly valued species in the project area, including:	6.5
	a. the effects of vehicle, mill and power plant emissions on vegetation	6.5.3
	b. the effects of dust emissions on vegetation	6.5.2
	2. The impacts of removing vegetation, for any project purpose, on the various species that depend on vegetation for food, shelter or other reason.	6.5.1
3.3.5	Terrain	6.4
	1. How each project component will impact the surrounding environment when the developer exposes or otherwise disturbs any bedrock or soils.	6.4
	2. Conceptual adaptive management plans to monitor and mitigate against adverse effects on local terrain.	6.4.1.1, 6.4.1.2, 6.4.2
	3. The possibilities for potential impacts of continued use of the existing airstrip, even with modifications.	6.3.3.5
	4. The effects of YGP operations, with particular attention to the effects of each open pit and waste rock pile, on permafrost conditions in the mining area and how the developer can mitigate adverse impacts from those effects.	6.4.1, 6.4.1.2
3.3.6	Air Quality and Climate	6.7; Appendix B
	1. The standards, guidelines and regulations that the developer will incorporate before during and after YGP operations to minimize and mitigate effects to air quality.	6.7.2.2, 6.7.4.1

	2. Through modeling that takes into account seasonal variations, predictions for how project emissions will disperse from the proposed development on a local and regional scale and the effects of such emissions. The Review Board encourages the developer to consult the GNWT or Environment Canada to develop such strategies. The scope of such plans will include:	6.7.2
	a. emissions from the gold refinery	6.7.2
	b. dust from roads, waste rock and ore stockpiles, tailings containment areas, quarries, and mill activities	6.7.2
	c. emissions from vehicles, diesel generators and other combustion sources	6.7.2
	3. The technologies and strategies, in conceptual incineration management plans for mitigating air quality impacts that the developer will use to prevent significant adverse impacts to air quality. The plan should indicate how the developer will minimize emissions and meet or exceed the Canada-wide Standards for Dioxins and Furans and the Canada-wide Standards for Mercury emissions through the use of appropriate technologies and operating practices. These guidelines are available on the following websites (respectively): http://www.ccme.ca/assets/pdf/d_and_f_standard_e.pdf http://www.ccme.ca/assets/pdf/hg_epg_cws_w_annex.pdf	6.7.2.3, 6.7.4
	4. Conceptual air quality monitoring and adaptive management plans, which will include thresholds for action and mitigations strategies, as well as how the developer will report monitoring results to regulators and any impacted communities.	6.8.1.9, 6.8.2.3
	5. The potential for tailings to become airborne and contaminate the surrounding environment.	6.7.2
	6. The developer's plans for minimizing impacts from dust production and settlement.	6.7.4
	7. YGP operations as a source for acidic precipitation as well as an evaluation of those effects.	6.7.2.1
	8. Predictions for the effects of YGP operations in generating greenhouse gas emissions, which will include:	6.7.1
	a. the developer's total annual atmospheric loading of greenhouse gases in CO2 equivalent values	6.7.1
	b. a list of the developer's commitments to minimizing greenhouse gas emissions	6.7.4
3.4	HUMAN ENVIRONMENT	7.0
3.4.1	Employment and Business Opportunities	7.1.2; Appendix G
	<i>Employment</i>	7.1.2
	1. An estimate of human resource requirements for the proposed development that includes a listing of all direct and contract employee requirements by skills category for each phase of the life of the proposed Yellowknife Gold Project, including work at the mine and in any other required activities (e.g., transportation). The developer will identify the skill levels that each position requires.	7.1.2.1
	2. An assessment of the likely percentage of direct employment for northern and Aboriginal residents at the proposed Yellowknife Gold Project, in light of the current and likely future (life of mine) labour pool context.	7.1.2.1, 7.1.2.2
	3. Any target goals for northern and Aboriginal employment.	7.1.2.3

	4. A description of any barriers to direct or contract employment, advancement and retention for northern residents, with particular emphasis on Aboriginal people and residents of smaller Tlicho and North Slave communities. This description must include:	7.1.2.4
	a. employee availability and employability in light of minimum skill requirements	7.1.2.4
	b. an investigation of current training opportunities for community members	7.1.2.4
	c. additional training programs required to maximize direct employment benefits for northern residents and/or Aboriginal persons	7.1.2.5, 7.1.2.6
	5. The developer's strategies and commitments for maximizing direct employment and retention of northern and Aboriginal persons, including a description of:	7.1.2.5
	a. hiring and retention policies related to minimum education levels, criminal records, and drug and alcohol use	7.1.2.5
	b. the developer's plans, strategies or other commitments to increase the mine-ready workforce and support career paths in mining. The developer must specifically outline how these strategies will create or contribute to training opportunities for northern and Aboriginal persons in general, and its employees in particular	7.1.2.5
	6. A discussion of whether and how the developer's targets, strategies and commitments for maximizing employment of Aboriginal and northern residents will extend to contractors.	7.1.2.3
	<i>Business Opportunities</i>	7.1.3; Appendix G
	7. By project phase, an estimate of all contractor and subcontractor goods and services that the proposed Yellowknife Gold Project will require, as well as an estimate of what percentage of goods and services the developer can source from Tlicho- and North Slave-based businesses.	7.1.3.5, 7.1.3.6
	8. The developer's policies, plans, strategies and commitments associated with maximizing contracting to Northern owned and operated businesses.	7.1.2.3, 7.1.3.8
	9. An assessment of any barriers to maximizing the utilization of northern businesses.	7.1.2.4
	10. The developer's prediction for any training, education or other improvements necessary to maximize regional business capacity to benefit from this proposed development.	7.1.2.6
3.4.2	Distribution of Beneficial and Adverse Socioeconomic Impacts	7.1.3
	1. Qualitative and quantitative estimates for all beneficial and adverse economic impacts from the proposed Yellowknife Gold Project, including:	7.1.3
	a. capital costs associated with placing the mine in operation (estimates should be in 2009 dollars CAD and may be in a +/- 20% range)	7.1.3.3
	b. annual operating costs during the life of the proposed Yellowknife Gold Project (+/- 20% range)	7.1.3.4
	c. federal, territorial and municipal taxes that the developer will remit by year, as well as from linked economic development (+/- 20% range)	7.1.3.7
	d. total employment impact, including a prediction of employment multipliers for the proposed development	7.1.3.8
	e. a prediction of any impacts the proposed development may have on public infrastructure (e.g., waste or water treatment sites)	7.1.3.9

	f. a prediction of any impacts the proposed Yellowknife Gold Project may have on other types of economic activity occurring in potentially-affected communities, with emphasis on the traditional economy	7.1.3.9
	2. The developer's policies, strategies, plans, and commitments for the mitigation of any adverse socio-economic impacts including those that the above points identify.	7.1.3.9
3.4.3	Social Impacts	7.2; Appendix G
	1. Potential impacts associated with the proposed development on community wellness and population health issues. The appropriate criteria and indicators should be developed in dialogue with the potentially-affected communities and responsible government agencies, and a prediction made of how community wellness may be impacted for each potentially-affected community.	7.2.1
	2. The physical, mental, and cultural health of mine workers and mine workers' families, including the impacts of long-distance commuting on families. This discussion should identify any alternative shift rotations considered by the developer, with the rationale for the chosen rotation.	7.2.1
	3. Human resources management plans and programs the developer will offer to identify and mitigate potential adverse social impacts, including discussion of:	7.2.2, 7.2.4
	a. increased income and money management	7.2.2
	b. potential stresses associated with long-distance commuting and stress management programs	7.2.2
	c. substance abuse and treatment policies	7.2.2
	d. avoidance of cross-cultural conflict at the work site	7.2.2
	e. support for "home" -community and family – support programs	7.2.2
	4. Potential impacts on public safety, especially in regards to the use of the winter road, and identification of mitigation to minimize vehicle accidents.	7.2.2
	5. Identification and description of any lessons that the developer may take from the social and economic impacts of previous mine developments in the Mackenzie Valley and northern Canada, and how the developer has incorporate such lessons into the impact identification, prediction and mitigation for the proposed Yellowknife Gold Project.	7.2.3
3.4.4	Cultural Impacts	7.3
	<i>Heritage Resources</i>	7.3; Appendix F
	1. All consultations with traditional knowledge holders, archaeologists, anthropologists, and the Prince of Wales Northern Heritage Centre that the developer conducted during its cultural impact assessment, and indicate where and how such interactions influenced mine planning.	3.7, 3.8, 5.0
	2. A list of all known archaeological and heritage resources, sites or areas of cultural significance, and areas of high potential for unfound heritage resources in or near the required environmental assessment local study area.	3.7
	3. All recommended mitigation measures that consultation produced for the protection of local known and high potential areas of cultural and heritage resources, and the developer's commitments to adopt these measures or reasons for not adopting.	7.3
	<i>Traditional Land Use and Wildlife Harvesting</i>	7.4
	1. Description of potential impacts the proposed Yellowknife Gold Project may have, on its own or in combination with other developments, on hunting, fishing, trapping	7.4

	and other activities for persons and organizations from the potentially-affected communities, including:	
	a. loss of use of the immediate area for wildlife harvesters (including hunting, trapping, fishing, berry picking and medicinal plant collection)	7.4
	b. loss of harvesting success and quality of harvested materials due to any Yellowknife Gold Project activities, with a focus on the impacts of increased traffic and non-resident hunting along the winter road, other disturbance impacts and the potential for real or perceived contamination of food sources	7.4
	c. loss of the use of the area for any leisure activities	7.4
	2. The developer's plans and commitments for mitigation against adverse impacts on traditional land use and traditional harvesting, or compensation for losses that cannot be prevented.	7.4
3.4.5	Human Environment Monitoring	7.2.4
	1. The developer will provide description of any commitments, plans and strategies proposed to engage with the responsible authorities and affected communities in monitoring and reporting on the following:	7.2.4
	a. success of local and regional residents and aboriginal people in gaining employment at the proposed Yellowknife Gold Project, and the success of training initiatives	7.2.4
	b. success of local and regional businesses in providing goods and services to the proposed Yellowknife Gold Project	7.2.4
	c. employee retention and worker and family wellness	7.2.4
	d. the potential contribution of the proposed Yellowknife Gold Project to beneficial and adverse social impacts at the regional and local levels	7.2.3, 7.2.4
	e. the use of the winter road	7.2.4
	f. impacts on wildlife harvesting and practice of traditional culture on the land	7.3
	2. The developer will identify relevant existing initiatives monitoring community wellness and investigate how it will engage with, contribute to, and consider results from these programs in its ongoing adaptive management programs	7.2, 7.3, 7.4
3.5	ACCIDENTS AND MALFUNCTIONS	8.0
	1. Predictions for the risks, modes of failure, and impacts of accidents and malfunctions including how the developer will use such information in planning and designing, with particular consideration to:	8.0
	a. a failure of any feature of the tailings containment area	8.3
	b. major fuel spills at the YGP site or along transportation routes	8.1
	c. accidents involving the transportation and handling of cyanide containing compounds	8.2
	d. the occurrence of 100-year extreme precipitation events causing greater-than-expected inflows into the tailings facility	8.4, 9.1
	2. A risk analysis of factors that may change the volume of any tailings containment facility, for example the formation of ice lenses in underlying sediment.	4.12.2.1
	3. The developer's contingency plans for higher than expected inflows to any mine workings.	8.3, 9.1
	4. Emergency response measures, that will include:	6.8.1

	a. storage, transportation and handling system failures of cyanide and other hazardous compounds	8.1
	b. storage, transportation and handling system failures of hydrocarbons	6.8.1.2, 8.2
	c. storage, transportation and handling system failures of explosives	6.8.1.3
	d. failures of the Tailings Containment Area, including worst case scenarios such as catastrophic failure of the dyke, as well as tailings spills	6.8.1.4, 8.3
	5. Conceptual Spill Response and Contingency Plans that describe the measures that the developer will take in the event of spills to prevent impacts to the environment. The developer is encouraged to refer to GNWT's Guide to the Spill Contingency Planning and Reporting Regulations and INAC's Guidelines for Spill Contingency Planning to develop such a plan.	6.8.1.1
	6. Strategies, in a conceptual Adaptive Management Plan, for how the developer will manage deviations from any predictions for effluent quality and level of impacts to the environment.	6.8.2.2
	7. A description of the level of accountability that the developer will hold for the actions, accidents and/or malfunctions of any contractors under the developer's employ, in addition to an explanation for how the contractor's environmental management plans will meet or exceed the goals for the developer's environmental management plans.	1.9
	8. Any other potential impacts of the environment on the proposed development that may cause any affect or malfunction to any of the environmental management systems or mine infrastructure, including :	9.0
	a. climate change effects	9.1
	b. geotechnical instability due to various causes such as seismic events	9.2
3.6	CUMULATIVE EFFECTS	10.0
	1. How the proposed development will contribute to cumulative effects on valued components, including:	10.4
	a. the effects of the developer's planned use of the historic Discovery Mine airstrip	6.3.3.5
	b. cumulative biophysical effects from the proposed development on water quality in the Yellowknife River system, including any downstream effects from the Tailings Impoundment Area or Waste Rock Storage Facilities. The developer should include a matrix, with reference to any supporting data, that depicts how each project aspect will contribute to cumulative and residual effects in the aquatic environment in the area	10.4.1.2
	c. cumulative effects on fish and other aquatic organisms	10.4.1.2
	d. cumulative social, economic and cultural effects with special emphasis on: i. practice of traditional language and traditional economy, time spent on the land, and other activities essential to the maintenance of aboriginal culture; ii. heritage resources in the historic Discovery mine area; and iii. long-distance commuting and impacts on families and local small communities.	10.4.3
	e. cumulative effects on wildlife related to the YGP and other human activities, with particular attention to the Bathurst Caribou	10.4.2
	f. cumulative impacts the proposed Yellowknife Gold Project may have in combination with other developments, on hunting, fishing, trapping and other activities for traditional harvesters from the potentially-affected communities	10.4.3.5

	2. Plans for the monitoring of cumulative effects and the adaptive management of the proposed project's contribution to regional cumulative effects.	6.8.2
3.7	CLOSURE AND RECLAMATION	11.0
	1. Preliminary Closure and Reclamation Plans, modeled after INAC's Mine Site and Reclamation Guidelines for the Northwest Territories, which should include:	11.2
	a. a list of Closure and Reclamation components, activities and objectives including a rationale for why the developer chose a particular option and how it best meets the goals for responsible reclamation. The developer will also list other options it considered, with a rationale for their exclusion	11.2
	b. a depiction of the project area after closure and reclamation of the mine in relation to its present condition, which should include various reclamation scenarios for the site, with particular attention to how the developer will reclaim the open pits	11.2.6
	c. structural demolition and equipment removal plans	11.2.4
	d. the methods and location for on- and off-site disposal of materials	11.2
	e. conceptual post-closure structural and chemical monitoring plans, for detecting acid rock drainage and metal leaching effects, that assures protection for the surrounding environment, including a schedule for reporting	11.3
	f. a cost-estimate component of reclamation activities	11.1
	g. the developer's liabilities for the Tailings Containment Area, airstrip, quarries, as well as for any Discovery-project remediations, including relevant financial securities	11.1
	2. The adequacy of the Tailings Containment Area closure design to prevent acid rock drainage from tailings, with respect to providing a sufficient barrier for the prevention of tailings oxidation, the re-suspension of tailings due to wave action, movement of groundwater through the tailings sediment, or any other pathway for contamination to spread from the Tailings Containment Area post-closure. The Developer should indicate how the Tailings Containment Area will interact with local watersheds after closure, including the impacts of that interaction.	11.2.5, 11.3
	3. Conceptual management and monitoring programs for waste rock, overburden or other material that may cause an acid rock drainage effect or metal leaching.	11.3
	4. The social and economic effects of mine closure, including the developer's commitments for assisting workers in the transition from employment with the proposed Yellowknife Gold Project after closure.	7.1.2.4, 7.1.3.9
	5. A history of consultations, since October 2008, that the developer has had with local communities and Aboriginal groups for the identification of various Closure and Reclamation issues, as well as a record that shows how the developer has adapted plans to alleviate such concerns.	5.4
	6. The developer's plans for establishing a self-sustaining vegetation community on the mine site after closure, which should include the following:	11.2
	a. re-vegetation techniques including an investigation on what species the developer will consider for this activity	11.2
	b. an outline for how soon the area will rebound to a natural state of vegetation, if ever, with supporting data	11.2.6
4.0	DELIVERABLES	
	As part of the DAR, the Developer must provide the following items:	

	a. a table that cross references items in the 2008 Terms of Reference with the corresponding sections of the main body of the DAR, including reference to the relevant data in the appendices	Concordance Table
	b. English, Dogrib and Chipewyan plain language, non-technical summary of the DAR	English provided; translations are in process.
	c. an audio translation of the plain language summary of the DAR in both Dogrib and Chipewyan languages	Audio translations are in process.
	d. a summary the company's corporate history in Canada and the Northwest Territories	1.7
	e. a description of corporate and individual responsibilities for the proposed development and associated operations, including the governance relationship between Tyhee Development Corp and Tyhee NWT Corp	1.8
	f. a description of the relationship between the Tyhee NWT Corp and its contractors/subcontractors and provide details as to how the company will ensure that the contractors/subcontractors will be responsible for and honour commitments made by Tyhee NWT Corp	1.9
	g. a detailed record of the environmental performance of the company and its contractors during exploratory work in support of the proposed development	1.10
	h. any policy, directives or terms of reference concerning the developer's Environmental, Health and Safety Committee	1.11

TABLE OF CONTENTS

PAGE

SUMMARY	i
CONCORDANCE TABLE	i
TABLE OF CONTENTS	xix
1.0 DEVELOPER.....	1
1.1 Corporate Overview	1
1.2 Project Governance	2
1.3 Environmental Policy	3
1.4 Properties	3
1.4.1 Yellowknife Gold Project (YGP)	3
1.4.2 Gold Resource	5
1.5 Mineral Claims and Leases	6
1.6 Required Permits, Licenses and Authorizations	8
1.7 Corporate History in Canada and The Northwest Territories	9
1.7.1 Name and Corporation	9
1.7.2 Intercorporate Relationships	9
1.7.3 General Development of the Business	9
1.7.3.1 History	9
1.7.3.2 Acquisitions	10
1.8 Corporate and Individual Responsibilities for Proposed Development	12
1.9 Relationship Between Tyhee NWT Corp and its Contractors / Subcontractors	13
1.10 Record of Environmental Performance	14
1.10.1 Inspection and Tyhee NWT Action Record - Water License MV2002L2 0017	17
1.10.1.1 Minewater Management	17
1.10.1.2 Fuel Spill 05-467	17
1.10.1.3 Sewage Treatment	17
1.10.1.4 Acid Rock Drainage Monitoring and Contingency Plan	18
1.10.1.5 Abandonment and Restoration Plan	18
1.11 Tyhee NWT Corp Environmental Health and Safety Committee	19
2.0 EXISTING ENVIRONMENT AND BASELINE CONDITIONS	20
2.1 Introduction	20
2.2 Present Land Uses	20
2.3 Environmental Setting	29

TABLE OF CONTENTS

	PAGE
2.4 Climate	30
2.4.1 Climate Monitoring.....	32
2.4.1.1 Wind Speed and Direction	32
2.4.1.2 Air Temperature	35
2.4.1.3 Incident Solar Radiation	36
2.4.1.4 Relative Humidity	37
2.4.1.5 Barometric Pressure	38
2.4.1.6 Precipitation	39
2.4.1.7 Snow Surveys	40
2.4.1.8 Evaporation.....	40
2.4.1.9 Climate Trends.....	43
2.5 Air Quality and Noise	48
2.5.1 Air Quality	48
2.5.1.1 Sources of Emission	50
2.5.1.2 On-site Collection of Ambient Air Quality Data.....	50
2.5.2 Noise	53
2.6 Surficial Geology and Soils.....	55
2.6.1 Surficial Geology.....	55
2.6.2 Soils.....	55
2.6.3 Permafrost.....	55
2.7 Ecosystems and Vegetation	56
2.7.1 Ecosystem Types	59
2.7.1.1 Upland Forest and Woodland	59
2.7.1.2 Riparian.....	59
2.7.1.3 Wetlands	60
2.7.1.4 Bedrock and Boulder Fields	61
2.7.1.5 Water	62
2.7.1.6 Anthropogenic.....	62
2.7.2 Fire History	62
2.7.3 Rare Plants.....	63
2.7.4 Rare and Sensitive Ecosystems	66
2.7.5 Culturally Significant Plants	67
2.7.6 Biodiversity	67
2.7.6.1 Northern Boreal Characteristics	68
2.7.6.2 Species Diversity.....	68

TABLE OF CONTENTS

	PAGE
2.7.6.3 Structural and Functional Diversity.....	69
2.7.6.4 Landscape-level Diversity	70
2.8 Surface Hydrology	72
2.8.1 Hydrological Monitoring	75
2.8.1.1 Narrow Lake Drainage Basin	75
2.8.1.2 Brien Lake Drainage Basin	79
2.8.1.3 Winter Lake Drainage Basin	80
2.8.1.4 Round Lake Drainage Basin	83
2.8.1.5 Northeast Brien Lake Site	86
2.8.1.6 Nicholas Lake Drainage Basin	86
2.9 Surface Water Quality.....	90
2.9.1 Overview.....	90
2.9.2 Sampling Methods.....	92
2.9.3 Parameters of Interest	92
2.9.4 Quality Assurance / Quality Control	93
2.9.4.1 Travel Blanks	93
2.9.4.2 Field Blanks	93
2.9.4.3 Duplicates	93
2.9.5 Regional Water Quality.....	94
2.9.5.1 Physical Parameters	94
2.9.5.2 Nutrients.....	98
2.9.5.3 Metals	98
2.9.6 Local Water Quality	109
2.9.6.1 Physical Parameters 2004-2005	109
2.9.6.2 Nutrients 2004-2005.....	109
2.9.6.3 Total Metals 2004-2005	112
2.9.6.4 Physical Parameters – SNP Monitoring	126
2.9.6.5 Nutrients – SNP Monitoring.....	126
2.9.6.6 Total Metals – SNP Monitoring.....	126
2.9.7 Temperature and Dissolved Oxygen	138
2.9.7.1 Narrow Lake.....	138
2.9.7.2 Winter Lake.....	146
2.9.8 YGP Area Water Quality Summary.....	148
2.10 Hydrogeology.....	148
2.10.1 General.....	148

TABLE OF CONTENTS

	PAGE
2.10.2 Topographic and Geologic Setting – Ormsby, Nicholas Lake.....	149
2.10.3 Groundwater Occurrence – Ormsby, Nicholas Lake.....	149
2.10.4 Shallow Groundwater	150
2.10.5 Deep Groundwater	150
2.10.6 Recharge and Discharge Areas, Flow Direction – Ormsby, Nicholas Lake	151
2.10.7 Permafrost	151
2.10.8 Conceptual Hydrogeologic Modelling	152
2.10.8.1 General	152
2.10.8.2 Model Description/Key Assumptions.....	153
2.10.8.3 Model Findings/Sensitivity Analyses	154
2.10.9 Groundwater Quality	161
2.11 Aquatic Resources.....	163
2.11.1 Background Studies.....	163
2.11.2 YGP Studies	171
2.11.2.1 Study Area	171
2.11.2.2 Field Studies	171
2.11.3 Round Lake	172
2.11.3.1 Lake Shoreline Habitat and Bathymetry.....	172
2.11.3.2 Fish Population	177
2.11.3.3 Zooplankton	177
2.11.3.4 Benthic Invertebrates	177
2.11.3.5 Lake Sediment Quality	178
2.11.3.6 Stream Habitat	178
2.11.4 Winter Lake	178
2.11.4.1 Lake Shoreline Habitat and Bathymetry.....	178
2.11.4.2 Fish Population	182
2.11.4.3 Zooplankton	182
2.11.4.4 Benthic Invertebrates – Winter Lake	182
2.11.4.5 Benthic Invertebrates – Winter Lake Inlet and Outlet Streams.....	183
2.11.4.6 Lake Sediment Quality	183
2.11.4.7 Stream Habitat	183
2.11.5 Eclipse Lake	184
2.11.5.1 Lake Shoreline Habitat.....	184
2.11.5.2 Fish Population	187
2.11.5.3 Zooplankton	187

TABLE OF CONTENTS

	PAGE
2.11.5.4 Benthic Invertebrates – Eclipse Lake	187
2.11.5.5 Benthic Invertebrates – Eclipse Lake Inlet and Outlet Streams.....	188
2.11.5.6 Lake Sediment Quality	188
2.11.5.7 Stream Habitat	188
2.11.6 Nicholas Lake	189
2.11.6.1 Lake Shoreline Habitat.....	189
2.11.6.2 Fish Population	192
2.11.6.3 Zooplankton	192
2.11.6.4 Benthic Invertebrates	192
2.11.6.5 Lake Sediment Quality	193
2.11.6.6 Stream Habitat	193
2.11.7 Brien Lake	193
2.11.7.1 Lake Shoreline Habitat.....	193
2.11.7.2 Fish Population	196
2.11.7.3 Zooplankton	196
2.11.7.4 Benthic Invertebrates	196
2.11.7.5 Lake Sediment Quality	197
2.11.7.6 Stream Habitat	197
2.11.8 Narrow Lake	197
2.11.8.1 Lake Shoreline Habitat.....	197
2.11.8.2 Fish Population	198
2.11.8.3 Zooplankton	198
2.11.8.4 Benthic Invertebrates	201
2.11.8.5 Lake Sediment Quality	201
2.11.8.6 Stream Habitat	201
2.11.9 Fish Biological Characteristics.....	201
2.11.9.1 Northern Pike	201
2.11.9.2 Lake Trout.....	202
2.11.9.3 Lake Whitefish	202
2.11.10 Fish Tissue – Metals Analysis.....	202
2.11.10.1 2004 Sampling	202
2.11.10.2 2005 Sampling	203
2.11.11 Proposed Haul Road – Ormsby to Nicholas Lake Stream Crossings	204
2.12 Wildlife	216
2.12.1 Mammals	218

TABLE OF CONTENTS

	PAGE
2.12.1.1 Barren-ground Caribou	219
2.12.1.2 Moose	231
2.12.1.3 Black Bear	234
2.12.1.4 Grizzly Bear	234
2.12.1.5 Grey Wolf	235
2.12.1.6 Wolverine	236
2.12.1.7 Foxes	237
2.12.1.8 Carnivore (Esker Survey)	238
2.12.2 Birds	240
2.12.2.1 Upland Breeding Birds	240
2.12.2.2 Raptors	246
2.12.2.3 Waterfowl and Waterbirds	248
2.12.3 Species with Special Conservation Status	252
2.12.3.1 Barren-ground Caribou	252
2.12.3.2 Wolverine	252
2.12.3.3 Grizzly Bear	253
2.12.3.4 Common Nighthawk	253
2.12.3.5 Olive-Sided Flycatcher	253
2.12.3.6 Rusty Blackbird	254
2.12.3.7 Peregrine Falcon	254
2.12.3.8 Short-eared Owl	255
2.12.3.9 Horned Grebe	256
3.0 EXISTING SOCIO-ECONOMIC BASELINE CONDITIONS	257
3.1 Yellowknife and N'Dilo	257
3.1.1 Background	257
3.1.2 Population	259
3.1.3 Employment	261
3.1.4 Education	262
3.1.5 Traditional Activities	263
3.1.6 Language	264
3.1.7 Community Services	264
3.1.8 Housing	265
3.1.9 Crime	265
3.1.10 Income	266

TABLE OF CONTENTS

	PAGE
3.2 Dettah.....	268
3.2.1 Background	268
3.2.2 Population.....	268
3.2.3 Employment.....	270
3.2.4 Education.....	271
3.2.5 Traditional Activities.....	272
3.2.6 Language.....	273
3.2.7 Community Services.....	273
3.2.8 Housing	274
3.2.9 Crime	274
3.2.10 Income.....	274
3.3 Behchoko (Rae / Edzo).....	275
3.3.1 Background	275
3.3.2 Population.....	275
3.3.3 Employment.....	277
3.3.4 Education.....	278
3.3.5 Traditional Activities.....	279
3.3.6 Language.....	280
3.3.7 Community Services.....	280
3.3.8 Housing	281
3.3.9 Crime	281
3.3.10 Income.....	282
3.4 Gameti (Rae Lakes).....	283
3.4.1 Background	283
3.4.2 Population.....	284
3.4.3 Employment.....	285
3.4.4 Education.....	286
3.4.5 Traditional Activities.....	287
3.4.6 Language.....	288
3.4.7 Community Services.....	288
3.4.8 Housing	289
3.4.9 Crime	290
3.4.10 Income.....	291
3.5 Wekweeti	292
3.5.1 Background	292

TABLE OF CONTENTS

	PAGE
3.5.2 Population.....	292
3.5.3 Employment.....	294
3.5.4 Education.....	295
3.5.5 Traditional Activities.....	296
3.5.6 Language.....	297
3.5.7 Community Services.....	297
3.5.8 Housing	297
3.5.9 Crime	298
3.5.10 Income.....	298
3.6 Whiti	298
3.6.1 Background	298
3.6.2 Population.....	299
3.6.3 Employment.....	300
3.6.4 Education.....	301
3.6.5 Traditional Activities.....	302
3.6.6 Language.....	303
3.6.7 Community Services.....	303
3.6.8 Housing	303
3.6.9 Crime	304
3.6.10 Income.....	305
3.7 Heritage Resources	307
3.7.1 Human History in the Region.....	311
3.7.2 Heritage Resource Expectations	313
3.7.3 Discovery /Ormsby Area.....	314
3.7.3.1 Winter Lake Tailings Containment Area.....	314
3.7.3.2 Alternative Processing Plant and Camp Facilities	315
3.7.3.3 Esker Airstrip.....	315
3.7.4 Nicholas Lake Area.....	315
3.7.5 Proposed Haul Road from Ormsby to Nicholas Lake	316
3.7.6 Existing Winter Road to Prosperous Lake	316
3.7.7 Conclusions	317
3.8 Traditional Land Use Studies.....	318
3.8.1 Yellowknives Dene First Nation (YKDFN).....	318
3.8.1.1 YKDFN History in the Region.....	318
3.8.1.2 YKDFN Traditional Land Use.....	320

TABLE OF CONTENTS

	PAGE
3.8.2 North Slave Métis Alliance (NSMA)	322
3.8.2.1 Métis History in the Region	322
3.8.2.2 Traditional Métis Land Use	324
4.0 DEVELOPMENT DESCRIPTION.....	326
4.1 Rationale for Project	326
4.2 Project History	329
4.2.1 Discovery Mine	329
4.2.2 Previous Exploration – Discovery and Ormsby Zones.....	329
4.2.3 Previous Exploration – Nicholas Lake Main Zone.....	330
4.2.4 Tyhee NWT Corp Exploration – Ormsby, Bruce Lake, and Nicholas Lake Main Zones.....	332
4.3 Project Alternatives.....	334
4.3.1 Site Access.....	334
4.3.2 Mining Methods	335
4.3.3 Tailings Storage Facilities.....	336
4.3.4 Process Plant.....	336
4.3.5 Waste Rock Storage.....	338
4.3.6 Camp	338
4.3.7 Fuel Storage	339
4.3.8 Truck Shop/Warehouse and Office Building	340
4.3.9 Power	340
4.4 Yellowknife Gold Project Geology.....	341
4.4.1 Property Geology.....	341
4.4.1.1 Ormsby	344
4.4.1.2 Nicholas Lake	344
4.4.2 Mineralization.....	344
4.4.3 Mineral Resources and Mineral Reserves	345
4.4.4 Exploration Potential.....	346
4.4.5 Seismicity	347
4.5 Site Preparation and Construction	347
4.5.1 Site Access and On-site Roads	347
4.5.2 Surface Buildings.....	348
4.6 Construction Materials	348
4.7 Mine Development and Scheduling	349
4.8 Mine Plan and Operation	351

TABLE OF CONTENTS

	PAGE
4.9 Mine Production Schedule	358
4.10 Ore Processing	358
4.11 Process Plant.....	364
4.11.1 Crushing and Ore Reclaim.....	365
4.11.2 Primary Grinding.....	365
4.11.3 Flotation.....	369
4.11.4 Regrinding and Thickening	369
4.11.5 Leaching and Filtration	369
4.11.6 Merrill Crowe.....	370
4.11.7 Cyanide Detoxification and Tailings Disposal	370
4.11.8 Arsenic Treatment	371
4.11.9 Reagents and Services.....	371
4.12 Waste Management.....	372
4.12.1 Process Effluent and Mine Discharge.....	372
4.12.2 Ormsby Tailings Containment Area and Nicholas Settling Pond	372
4.12.2.1 Ormsby Tailings Containment Area	373
4.12.2.2 Nicholas Settling Pond	374
4.12.3 Water Balance	374
4.12.4 TCA Dam Design and Construction.....	376
4.12.5 Seepage Control and Collection Systems	378
4.12.6 Tailings Delivery, Reclaim Water Pipelines.....	378
4.12.7 Waste Rock Storage.....	378
4.12.8 Low Grade Stockpile.....	379
4.12.9 Acid Rock Drainage Potential	379
4.12.9.1 Potential Acid-Generating (PAG) and Non Acid-Generating (NAG) Waste.....	379
4.12.10 Solid and Hazardous Wastes.....	382
4.12.11 Domestic Sewage.....	382
4.13 Water Management Objectives.....	383
4.13.1 Water Balance	383
4.14 Support Infrastructure	394
4.14.1 Ormsby Infrastructure	394
4.14.1.1 Power Generation	394
4.14.1.2 Camp	394
4.14.1.3 Warehouse, Maintenance, and Associated Infrastructure	395

TABLE OF CONTENTS

	PAGE
4.14.1.4 Fuel Storage	395
4.14.1.5 Explosives Storage	396
4.14.1.6 Airstrip	396
4.14.1.7 Winter Road	398
4.14.1.8 Local YGP Haul Roads	398
4.14.1.9 Water	398
4.14.1.10 Reagent Storage	398
4.14.2 Nicholas Lake	399
4.14.2.1 Power Generation	399
4.14.2.2 Camp and Associated Infrastructure	399
4.14.2.3 Fuel Storage	399
4.14.2.4 Explosives Storage	400
4.14.2.5 Access Road	400
4.14.2.6 Local Haul Roads	400
4.14.2.7 Water	400
4.14.2.8 Fire Protection	400
4.15 Human Resources	401
4.15.1.1 Work Force	401
5.0 COMMUNITY ENGAGEMENT	404
5.1 Consultation and Communications program	404
5.2 Aboriginal Communities	404
5.3 Regulatory Agencies	405
5.4 Consultation Events	406
5.5 Commitments and Agreements	409
5.6 Outstanding Issues and Resolution Efforts	409
6.0 BIOPHYSICAL ENVIRONMENT ASSESSMENT	410
6.1 Environmental and Socio-economic Assessment Methodology	410
6.1.1 Project Scoping	413
6.1.2 Selection of Valued Components	415
6.1.3 Assessment Boundaries	417
6.1.3.1 Geographic/Spatial Boundaries	417
6.1.4 Temporal Boundaries	418
6.1.5 Issue Identification	418
6.1.6 Impact Assessment	418

TABLE OF CONTENTS

	PAGE
6.1.6.1 Residual Effects	419
6.1.6.2 Assessing Impact Significance	419
6.2 Water Resources	420
6.2.1 Surface Waters	422
6.2.1.1 Surface Water Flow	422
6.2.1.2 Surface Water Quality	427
6.2.1.3 Mitigation and Effects Assessment	438
6.2.2 Groundwater	443
6.2.2.1 Groundwater Flow	443
6.2.2.2 Groundwater Quality	446
6.2.2.3 Mitigation Measures	446
6.2.2.4 Residual Effects	446
6.3 Aquatic Resources	447
6.3.1 Aquatic Resource Summaries	447
6.3.1.1 Ormsby Development Area	447
6.3.1.2 Nicholas Development Area	450
6.3.1.3 All-Weather Haul Road Stream Crossings	450
6.3.2 Interactions, Potential Effects, and Mitigation	450
6.3.3 Residual Effects Assessment	451
6.3.3.1 Tailings Containment Area – Winter Lake	460
6.3.3.2 Flow Modification – Winter Lake Outlet Stream and Narrow Lake	461
6.3.3.3 Nicholas Lake Development Area	463
6.3.3.4 Giauque Lake	465
6.3.3.5 Road and Airstrip Construction, Operation, and Maintenance	468
6.4 Surficial Geology and Soils	469
6.4.1 Changes to Soil and Permafrost	469
6.4.1.1 Soils	470
6.4.1.2 Permafrost	470
6.4.2 Project Design and Mitigation Measures	471
6.4.3 Residual Effects	471
6.5 Ecosystems and Vegetation	471
6.5.1 Removal/Burial of Ecosystems and Plant Species by the Project Footprint	472
6.5.2 Effects of Dust Deposition	475
6.5.3 Effects of Air Emissions	476
6.5.4 Potential Introduction and Spread of Invasive Plants	477

TABLE OF CONTENTS

	PAGE
6.5.5 Project Design and Mitigation Measures	478
6.5.6 Residual Effects.....	480
6.6 Wildlife and Wildlife Habitat	483
6.6.1 Mammals	485
6.6.1.1 Barren-ground Caribou – Bathurst Herd	485
6.6.1.2 Moose	487
6.6.1.3 Black Bear.....	489
6.6.1.4 Wolves	490
6.6.1.5 Wolverine	492
6.6.1.6 Mitigation Measures.....	493
6.6.1.7 Residual Effects	495
6.6.2 Birds	495
6.6.2.1 Upland Breeding Birds	495
6.6.2.2 Raptors	499
6.6.2.3 Waterfowl and Waterbirds.....	502
6.6.2.4 Mitigation Measures.....	504
6.6.2.5 Residual Effects	505
6.6.3 Conceptual Wildlife Monitoring and Management Plan.....	506
6.7 Air Quality and Noise	506
6.7.1 Greenhouse Gas Emissions	506
6.7.2 Air Quality	509
6.7.2.1 Scope of Air Quality Assessment.....	509
6.7.2.2 Air Quality Assessment Endpoints	511
6.7.2.3 Air Quality Assessment Modelling Approach	512
6.7.2.4 Air Quality Effects Assessment	520
6.7.3 Noise	527
6.7.4 Project Design Features and Mitigation Measures	530
6.7.4.1 Air Quality	530
6.7.4.2 Noise.....	530
6.7.5 Residual Effects.....	531
6.7.5.1 Air Quality	531
6.8 Environmental Management System	535
6.8.1 Environmental Management Plan.....	536
6.8.1.1 Emergency Response and Spill Contingency Plan	536
6.8.1.2 Fuel Storage and Handling Plan	539

TABLE OF CONTENTS

	PAGE
6.8.1.3 Explosives Handling and Storage Plan	540
6.8.1.4 Tailings Containment Area Management Plan	540
6.8.1.5 Waste Management Plan	541
6.8.1.6 ARD/Waste Rock Management Plan	543
6.8.1.7 Wildlife Protection Plan	543
6.8.1.8 Conceptual Closure and Reclamation Plan	543
6.8.1.9 Air Quality Management Plan	543
6.8.2 Environmental Monitoring Program	544
6.8.2.1 Surface and Groundwater Quality Monitoring	545
6.8.2.2 Aquatic Effects Monitoring	545
6.8.2.3 Air Quality Monitoring	548
6.8.2.4 Wildlife Monitoring	548
7.0 HUMAN ENVIRONMENT ASSESSMENT	549
7.1 Economy	551
7.1.1 Methodology	551
7.1.2 Employment and Business Opportunities	552
7.1.2.1 Direct and Indirect Employment	552
7.1.2.2 Labour Market	559
7.1.2.3 Goal for Northern and Aboriginal Employment	561
7.1.2.4 Barriers to Employment	562
7.1.2.5 Strategies and Commitments to Maximize Direct Employment and Retention	564
7.1.2.6 Training and Education	566
7.1.3 Economic Effects	567
7.1.3.1 Direct Economic Effects	567
7.1.3.2 Total Economic Effects	568
7.1.3.3 Capital Costs	568
7.1.3.4 Operating Costs	569
7.1.3.5 Total Construction and Operation Expenditures	570
7.1.3.6 Supplier Purchases	570
7.1.3.7 Government Revenue	571
7.1.3.8 Total Employment Effect Revenue	572
7.1.3.9 Foreseeable Economic Effects and Mitigation Strategies	573
7.2 Society and Culture	574
7.2.1 Potential Social Effects	574

TABLE OF CONTENTS

	PAGE
7.2.1.1 Community Wellness and Population Health	574
7.2.2 Social Effect Mitigation Plan	583
7.2.2.1 Human Resources Management Plan	583
7.2.3 Lessons Learned from Previous Mine Developments in the Northwest Territories ..	585
7.2.4 Human Environment Monitoring	585
7.3 Heritage Resources	587
7.4 Traditional and Contemporary Land Use and Wildlife Harvesting	589
8.0 ACCIDENTS AND MALFUNCTIONS	592
8.1 Major Spills	592
8.2 Transportation-Related Major Spills	594
8.2.1 Introduction of Harmful Substances	595
8.3 Tailings Containment Area (TCA)	596
8.4 Additional Considerations and Emergency Response Measures	598
9.0 EFFECTS OF ENVIRONMENT ON PROJECT	599
9.1 Climate Change and Extreme Precipitation	599
9.2 Seismic Instability	600
10.0 CUMULATIVE EFFECTS	601
10.1 Spatial Boundaries	602
10.2 Temporal Boundaries	603
10.3 Regional Developments	604
10.3.1 Previous and Existing Developments	604
10.3.2 Reasonably Foreseeable Projects	604
10.4 Cumulative Effects Assessment	609
10.4.1 Water Resources	609
10.4.1.1 Groundwater Quality	609
10.4.1.2 Surface Water Quality and Aquatic Resources	609
10.4.2 Wildlife	610
10.4.2.1 Bathurst Caribou	611
10.4.3 Human Environment	613
10.4.3.1 Worker and Family Wellness	613
10.4.3.2 Economic Effects	613
10.4.3.3 Cultural Effects	614
10.4.3.4 Heritage Resources	614
10.4.3.5 Traditional Activities	614

TABLE OF CONTENTS

	PAGE
11.0 CLOSURE AND RECLAMATION.....	616
11.1 Introduction	616
11.1.1 Regulatory Environment	616
11.1.2 Objectives.....	617
11.2 Closure Plan	617
11.2.1 Roads and Airstrip	618
11.2.1.1 Closure Strategy	618
11.2.1.2 Reclamation Plan.....	619
11.2.2 Open Pit and Underground Mines	619
11.2.2.1 Ormsby Open Pit.....	619
11.2.2.2 Ormsby Underground.....	619
11.2.2.3 Nicholas Lake Underground.....	620
11.2.3 Waste Rock Storage.....	621
11.2.4 Buildings and Infrastructure	622
11.2.4.1 Process Buildings, Accommodations, and Ancillary Facilities	622
11.2.4.2 Storage	624
11.2.4.3 Solid Waste Management	624
11.2.4.4 Water and Sewage Treatment	625
11.2.4.5 Water Supply and Distribution.....	625
11.2.5 Water Management Facilities	626
11.2.5.1 Sedimentation Ponds, Sumps, and Ditches	626
11.2.5.2 Tailings Containment Area	626
11.2.5.3 Narrow Lake Inflow	627
11.2.6 Reclamation Strategy Summary	628
11.3 Post Closure Monitoring.....	628
REFERENCES	637

TABLES

Table 1.4-1:	YGP, Ormsby, Bruce Lake and Nicholas Lake Main Zones Measured, Indicated and Inferred Gold Resource at 1.25 and 1.1 Gram per Tonne Cut-off.....	5
Table 1.5-1:	Leases Held by Tyhee in the YGP Area	6
Table 1.6-1:	Permit Activities	8
Table 1.10-1:	Inspections and Tyhee NWT Action Record Land Use Permit MV2005C001.....	14
Table 2.1-1:	Environmental Baseline Fieldwork.....	20
Table 2.2-1:	Summaries of Recent Land Use Permits in the YGP Study Area	22
Table 2.2-2:	Summary of Surface Dispositions in the YGP Area	23
Table 2.4-1:	Summary of Yellowknife Gold Project Climate Data (October 2004 – December 2010)....	31
Table 2.4-2:	Yellowknife Climate Normals (1981 – 2010).....	31
Table 2.4-3:	Summary of Snow Survey Data.....	41
Table 2.4-4a:	Average Daily Evaporation Rates – Yellowknife Gold Project	42
Table 2.4-4b:	Annual Evaporation Totals – Yellowknife Gold Project.....	42
Table 2.5-1:	Fort Liard and Yellowknife Baseline Air Quality (2008 and 2009).....	49
Table 2.5-2:	Ambient 24-Hour Pm ₁₀ Concentrations (µg/m ³).....	52
Table 2.5-3:	Ambient 30 day SO ₂ , NO ₂ and O ₃ Concentrations (µg/m ³)	52
Table 2.5-4:	Summary of Long Term Monitoring	54
Table 2.7-1:	Ecosystem Types Mapped within the YGP Study Area	57
Table 2.7-2:	Fire Disturbance within the YGP Study Area	63
Table 2.7-3:	Rare Plant Habitat Potential in the YGP Study Area	64
Table 2.7-4:	Distribution of Sensitive Ecosystem Types in the YGP Study Area	66
Table 2.7-5:	Species Diversity in the YGP Study Area	69
Table 2.7-6:	Structural Stage Diversity in the YGP Study Area	70
Table 2.7-7:	Ecosystem Type Diversity in the YGP Study Area	70
Table 2.7-8:	Landscape-Level Statistics for the YGP Study Area.....	71
Table 2.8-1:	Summary of Hydrometric Station General Basin Characteristics.....	75
Table 2.8-2:	Narrow Lake Outlet – Annual Discharge and Runoff Values – 2005 to 2010	78

Table 2.8-3:	Narrow Lake Outlet Average Monthly Discharge and Runoff – 2005 to 2010.....	79
Table 2.8-4:	Brien Lake Outlet – Discrete Discharge Measurements – 2004	79
Table 2.8-5:	Winter Lake Outlet Hydrometric Station Annual Discharge and Runoff Values	82
Table 2.8-6:	Winter Lake Outlet Hydrometric Station Annual Monthly Discharge and Runoffs.....	83
Table 2.8-7:	Round Lake Outlet Hydrometric Station Annual Discharge and Runoff Values.....	85
Table 2.8-8:	Round Lake Outlet Hydrometric Station Average Monthly Discharge and Runoffs	86
Table 2.8-9:	Nicholas Lake Outlet – Annual Discharge and Runoff Values – 2005 to 2010	89
Table 2.8-10:	Nicholas Lake Outlet – Average Monthly Discharge and Runoffs 1989 – 2010.....	90
Table 2.9-1:	Winter Lake Dissolved Oxygen and Temperature Levels, March 22, 2010	146
Table 2.10-1:	Groundwater Model Sensitivity Analyses Summary	160
Table 2.10-2:	Analytical Results for Groundwater Sampling at Ormsby and Nicholas Lake – September 2009	162
Table 2.11-1:	Summary of Available Reports on the Aquatic Resources of Giauque Lake Area.....	164
Table 2.11-2:	Fish Species Found in the YGP Study Area	165
Table 2.11-3a:	Fish Habitat Suitability for Northern Pike	166
Table 2.11-3b:	Fish Habitat Suitability for Lake Trout.....	167
Table 2.11-3c:	Fish Habitat Suitability for Lake Whitefish.....	168
Table 2.11-3d:	Fish Habitat Suitability for Lake Cisco	169
Table 2.11-3e:	Fish Habitat Suitability for Arctic Grayling.....	170
Table 2.11-4:	Zooplankton Total Abundance and Percent Composition.....	206
Table 2.11-5:	Benthic Invertebrate Mean Abundance and Density.....	207
Table 2.11-6:	Benthic Invertebrate Community Composition.....	209
Table 2.11-7:	Lake Sediment Quality	211
Table 2.11-8:	Fish Species Composition and Biological Data	212
Table 2.11-9:	Metals in Fish Tissues, 2004	213
Table 2.11-10a:	Metals in Fish Muscle Tissue - Summer 2005	214
Table 2.11-10b:	Metals in Fish Liver Tissue - Summer 2005.....	215
Table 2.12-1:	Mammals Potentially Found in the YGP Study Area	218
Table 2.12-2:	Upland Nesting Birds that Potentially Occur in the YGP Study Area	241

Table 2.12-3:	Number of Bird Observations by Species and Habitat Type, 2005	245
Table 2.12-4:	Incidental Bird Observations, 2004 and 2005	246
Table 2.12-5:	Raptor Species that Potentially Occur in the YGP Study Area	247
Table 2.12-6:	Waterfowl and Waterbird Species that Potentially Occur in the YGP	249
Table 3.1-1:	Yellowknife Population by Gender, 2009	261
Table 3.2-1:	Dettah Population by Gender, 2009	270
Table 3.3-1:	Behchoko Population by Gender, 2009	277
Table 3.4-1:	Gameti Population by Gender, 2009	285
Table 3.5-1:	Wekweeti Population by Gender, 2009	294
Table 3.6-1:	Whati Population by Gender, 2009	300
Table 4.2.1:	Exploration Diamond Drilling Summary	333
Table 4.4-1:	YGP Mineral Resources (July 2010)	345
Table 4.4-2:	YGP Diluted Mineral Reserves (July 2010)	346
Table 4.7-1:	Project Development Schedule	350
Table 4.8-1:	Base Case Production Schedule	357
Table 4.11-1:	Processing Plant Design Parameters	364
Table 4.12-1:	Solid Waste Management Principles	382
Table 4.13-1:	Ormsby Open Pit Final Build-out Maximum Dewater Rate	384
Table 4.13-2:	Distribution of Runoff to the Pond from Direct Precipitation	385
Table 4.13-3:	Monthly TCA Release Rates (M ³)	386
Table 4.13-4:	Water-Balance Summary Average Year Conditions	388
Table 4.13-5:	Water-Balance Summary 10-Year Wet Conditions	390
Table 4.13-6:	Water-Balance Summary 10-Year Dry Conditions	392
Table 4.14-1:	One Year Reagent and Consumable Inventory	399
Table 4.15-1:	Summary of Staffing Requirements	401
Table 5.4-1:	Consultation Events Initiated by Tyhee NWT Corp	406
Table 6.1-1:	Effects Assessment Criteria	412
Table 6.1-2:	Selected Valued Ecosystem Components	416
Table 6.2-1:	Water Quality Impacts and Mitigation Summary	420

Table 6.2-2:	Mean Monthly Discharge Ranges from Winter and Narrow Lakes, 2005-2010	422
Table 6.2-3:	Recommended Flow Discharges from the TCA to the Narrow Lake Inlet Stream	424
Table 6.2-4:	Estimated Monthly Outflows from Narrow Lake	425
Table 6.2-5:	Modelled Contaminant Concentration in Plant Effluent and Resultant Concentrations in the TCA.....	430
Table 6.2-6:	Required TCA Concentrations of Six Potential Contaminants	434
Table 6.2-7:	Arsenic Toxicity to Various Freshwater Organisms	440
Table 6.3-1:	Mean Fork Lengths, Weights, and Condition Factors of Northern Pike Captured Using Gill Nets in Winter and Narrow Lakes, August 6-8, 2005.....	448
Table 6.3-2:	Potential Project – Aquatic Environment Interactions	451
Table 6.3-3:	Project Activities, Effects, Mitigation Measures and Residual Effects on the Aquatic Environment	452
Table 6.3-4:	Residual Effects Analysis	458
Table 6.3-5:	Recommended Flow Discharges From the TCA	462
Table 6.3-6:	Giauque Lake Water Level Changes and Rates of Change	467
Table 6.4-1:	Extent of Footprint Components for the YGP	470
Table 6.5-1:	Valued Components Considered in the Assessment of Potential Project Effects.....	472
Table 6.5-2:	Distribution of Ecosystem Types within Proposed YGP Footprint and Study Area	473
Table 6.5-3:	Summary of Mitigation Measures for the YGP.....	479
Table 6.5-4:	Residual Effects Summary for Ecosystems and Plant Species	481
Table 6.6-1:	VECs Evaluated and Selected for YGP Wildlife Effects Assessment	483
Table 6.6-2:	Potential Wildlife Impacts and Mitigation Summary.....	485
Table 6.7-1:	Global Warming Potentials	507
Table 6.7-2:	Summary of Annual YGP GHG Emissions	507
Table 6.7-3:	Annual GHG Emissions Summary for Mining Projects in the Northwest Territories	508
Table 6.7-4:	NWT Ambient Air Quality Standards for Criteria Air Contaminants	512
Table 6.7-5:	Dustfall Criteria in Other Jurisdictions.....	512
Table 6.7-6:	Base Case Simplified YGP Production Schedule	513
Table 6.7-7:	YGP Emissions Sources in the LSA	513
Table 6.7-8:	Threshold Limit Values for Mine Health and Safety Standards in NWT	515

Table 6.7-9:	Summary of Annual CAC Emissions	516
Table 6.7-10:	CALPUFF Model Switch Settings	517
Table 6.7-11:	CALPUFF Emission Source Types.....	517
Table 6.7-12:	Emission Rates Used for YGP Dispersion Modelling	520
Table 6.7-13:	Stack Parameters Used for Point Source Dispersion Modelling	521
Table 6.7-14:	Stack Parameters Used for Volume Source Dispersion Modelling	521
Table 6.7-15:	Ormsby Site Building Parameters Used for Dispersion Modelling	522
Table 6.7-16:	Nicholas Lake Site Building Parameters Used for Dispersion Modelling	522
Table 6.7-17:	Maximum Predicted CAC Concentrations	523
Table 6.7-18:	Maximum Predicted Dustfall Deposition Levels.....	523
Table 6.7-19:	Typical Sound Levels of Common Noises	527
Table 6.7-20:	Typical Maximum Construction and Mining Equipment Sound Levels.....	528
Table 6.7-21:	Summary of Residual Effects on Ambient Air Quality	532
Table 6.8-1:	CWS for Dioxins and Furans	544
Table 7.0-1:	Valued Socio-Economic Components Potentially Affected by the Proposed Yellowknife Gold Project.....	550
Table 7.1-1:	Estimated Yearly Average Direct / Contract Employment Opportunities During the Operations Phase of the YGP	553
Table 7.1-2:	Estimated Yearly Average Employment Opportunities by Area of Operation and Skill Category During the Operations Phase of the YGP	557
Table 7.1-3:	Estimated Proportion of Personnel by Skill Level Based on Yearly Average During the Operations Phase	558
Table 7.1-4:	Estimated Construction Phase Personnel by Area of Operation	558
Table 7.1-5:	Comparison of Labour Force Activity in the RSA and the Northwest Territories (2009)	559
Table 7.1-6:	Community Growth Rate and Available Labour Supply in the Regional Study Area as of 2009	561
Table 7.1-7:	Estimated Pre-production Capital Costs	569
Table 7.1-8:	Estimated Annual Operating Costs.....	569
Table 7.1-9:	Estimated Total Operations Expenditures	570
Table 7.1-10:	Estimated Total Construction and Operation Costs, by Expenditure	570

Table 7.1-11:	Estimated Supply Purchases, Construction and Operations Phases	571
Table 7.1-12:	Estimated NWT and Canadian Government Tax Revenues, (Construction and Operations Phases).....	572
Table 7.1-13:	Estimated Person Years of Employment and Wages and Benefits for Direct Labour Construction and Operations Phases	572
Table 7.2-1:	Potential Effects and Mitigation Measures.....	584

FIGURES

Figure 1.4-1:	Project Location.....	4
Figure 1.5-1:	Active Mineral Claims and Leases.....	7
Figure 2.1-1:	Local Study Area	21
Figure 2.2-1:	Land Uses and Land Dispositions in the Yellowknife Gold Project Area	28
Figure 2.4-1a:	Wind Rose for Yellowknife Gold Project Site	33
Figure 2.4-1b:	Wind Rose for Yellowknife Airport	34
Figure 2.4-2:	Daily Maximum Recorded Wind Gust Speed – Yellowknife Gold Project.....	35
Figure 2.4-3:	Daily Air Temperatures – Yellowknife Gold Project	36
Figure 2.4-4:	Daily Maximum Incident Solar Radiation – Yellowknife Gold Project.....	37
Figure 2.4-5:	Daily Maximum, Mean and Minimum Relative Humidity – Yellowknife Gold Project	38
Figure 2.4-6:	Daily Barometric Pressure – Yellowknife Gold Project	39
Figure 2.4-7:	Average Monthly Precipitation – Yellowknife Gold Project	40
Figure 2.4-8:	Comparison of Recorded Air Temperatures – YGP and Yellowknife Airport	43
Figure 2.4-9:	Annual Air Temperature Trend – Yellowknife Airport (1943 – 2010).....	44
Figure 2.4-10:	January Air Temperature Trend – Yellowknife Airport (1943 – 2010).....	45
Figure 2.4-11:	April Air Temperature Trend – Yellowknife Airport (1943 – 2010)	45
Figure 2.4-12:	July Air Temperature Trend – Yellowknife Airport (1942 – 2010)	46
Figure 2.4-13:	Trends in Annual Rainfall – Yellowknife Airport (1943 – 2010).....	47
Figure 2.4-14:	Trends in Annual Snowfall – Yellowknife Airport (1943 – 2010)	47
Figure 2.4-15:	Date of Zero Snow on Ground – Yellowknife Airport (1955 – 2010)	48

Figure 2.5-1:	Air and Noise Monitoring Station Locations	51
Figure 2.7-1:	Distribution of General Ecosystem Types in the YGP Study Area	58
Figure 2.7-2:	Rare Plant Habitat Potential in the YGP Study Area	65
Figure 2.8-1:	Yellowknife River Drainage Basins	73
Figure 2.8-2:	Local Study Area Hydrometric Stations	74
Figure 2.8-3:	Narrow Lake Outlet - Discharge Hydrographs – 2004 to 2010	78
Figure 2.8-4:	Winter Lake Outlet - Discharge Hydrographs – 2005 to 2010	82
Figure 2.8-5:	Round Lake Outlet - Discharge Hydrographs – 2005 to 2010	85
Figure 2.8-6:	Nicholas Lake Outlet - Discharge Hydrographs – 1989 to 2010	89
Figure 2.9-1:	Drainage Patterns and Water Quality Sampling Sites in the YGP Study Area	91
Figure 2.9-2:	Water Quality in the Slave Province pH and Hardness.....	96
Figure 2.9-3:	Physical Parameters Yellowknife River at Yellowknife	97
Figure 2.9-4:	Water Quality in the Slave Province Ammonia	99
Figure 2.9-5:	Water Quality in the Slave Province Aluminum and Arsenic.....	100
Figure 2.9-6:	Total Metals Yellowknife River at Yellowknife.....	101
Figure 2.9-7:	Water Quality in the Slave Province Cadmium and Copper	103
Figure 2.9-8:	Water Quality in the Slave Province Cyanide and Iron	104
Figure 2.9-9:	Water Quality in the Slave Province Lead and Inorganic Mercury	106
Figure 2.9-10:	Total Metals Yellowknife River at Yellowknife.....	107
Figure 2.9-11:	Water Quality in the Slave Province Nickel and Zinc.....	108
Figure 2.9-12:	pH 2004-2005.....	110
Figure 2.9-13:	Hardness (as CaCO ₃) 2004-2005.....	111
Figure 2.9-14:	Ammonia 2004-2005	113
Figure 2.9-15:	Total Aluminum 2004-2005.....	114
Figure 2.9-16:	Total Arsenic 2004-2005	116
Figure 2.9-17:	Total Cadmium 2004-2005	117
Figure 2.9-18:	Total Copper 2004-2005.....	118
Figure 2.9-19:	Total Cyanide 2004-2005	120
Figure 2.9-20:	Total Iron 2004-2005	121

Figure 2.9-21:	Total Lead 2004-2005	122
Figure 2.9-22:	Total Ultra Low Mercury 2004-2005	123
Figure 2.9-23:	Total Nickel 2004-2005.....	124
Figure 2.9-24:	Total Selenium 2004-2005.....	125
Figure 2.9-25:	Total Zinc 2004-2005.....	128
Figure 2.9-26:	pH Surveillance Network Program (SNP) Sampling	129
Figure 2.9-27:	Hardness (as CaCO ₃) Surveillance Network Program (SNP) Sampling	130
Figure 2.9-28:	Ammonia Surveillance Network Program (SNP) Sampling.....	131
Figure 2.9-29:	Total Aluminum Surveillance Network Program (SNP) Sampling	132
Figure 2.9-30:	Total Arsenic Surveillance Network Program (SNP) Sampling.....	133
Figure 2.9-31:	Total Cadmium Surveillance Network Program (SNP) Sampling	134
Figure 2.9-32:	Total Copper Surveillance Network Program (SNP) Sampling	135
Figure 2.9-33:	Total Cyanide Surveillance Network Program (SNP) Sampling.....	136
Figure 2.9-34:	Total Iron Surveillance Network Program (SNP) Sampling.....	139
Figure 2.9-35:	Total Lead Surveillance Network Program (SNP) Sampling.....	140
Figure 2.9-36:	Total Mercury Surveillance Network Program (SNP) Sampling	141
Figure 2.9-37:	Total Nickel Surveillance Network Program (SNP) Sampling	142
Figure 2.9-38:	Total Selenium Surveillance Network Program (SNP) Sampling	143
Figure 2.9-39:	Total Zinc Surveillance Network Program (SNP) Sampling	144
Figure 2.9-40:	Dissolved Oxygen Profiles Narrow Lake.....	145
Figure 2.9-41:	Dissolved Oxygen Profiles Winter Lake.....	147
Figure 2.10-1:	Groundwater Model Domain Showing Hydraulic Features and Mining Area of Ormsby	155
Figure 2.10-2:	Open Mine and Underground Mine Depths Ormsby.....	156
Figure 2.10-3:	Groundwater Model Domain Showing Hydraulic Features and Mining Area of Nicholas Lake	157
Figure 2.10-4:	Underground Mine Depths Nicholas Lake	158
Figure 2.11-1:	Fisheries and Aquatic Resources Local Study Area Lakes Sampled	174
Figure 2.11-2:	Round Lake Bathymetry	175

Figure 2.11-3: Round Lake Habitat Features.....	176
Figure 2.11-4: Winter Lake Bathymetry	180
Figure 2.11-5: Winter Lake Habitat Features	181
Figure 2.11-6: Eclipse Lake Habitat Features.....	186
Figure 2.11-7: Nicholas Lake Habitat Features.....	191
Figure 2.11-8: Brien Lake Habitat Features.....	195
Figure 2.11-9: Narrow Lake Habitat Features.....	199
Figure 2.11-10: Narrow Lake Bathymetry	200
Figure 2.11-11: Ormsby to Nicholas Lake Access Road Fisheries Survey Locations.....	205
Figure 2.12.-1: YGP Wildlife Study Areas.....	217
Figure 2.12.-2: Bathurst Caribou Herd Population Estimates, 1970 - 2009	220
Figure 2.12-3a: Distribution of Satellite- and GPS-Collared Bathurst Caribou: Annual Spring Migration (April 16 to May 31).....	222
Figure 2.12-3b: Distribution of Satellite- and GPS-Collared Bathurst Caribou: Annual Calving Period (June 1 to June 25)	223
Figure 2.12-3c: Distribution of Satellite- and GPS-Collared Bathurst Caribou: Annual Post-Calving Movement (June 26 to July 15)	224
Figure 2.12-3d: Distribution of Satellite- and GPS-Collared Bathurst Caribou: Annual Summer Range (July 16 to September 10).....	225
Figure 2.12-3e: Distribution of Satellite- and GPS-Collared Bathurst Caribou: Annual Fall Migration (September 11 to November 20)	226
Figure 2.12-3f: Distribution of Satellite- and GPS-Collared Bathurst Caribou: Annual Winter Range (November 21 to April 15).....	227
Figure 2.12-4: Aerial Wildlife Transects and Observations February 4, March 7 and April 18, 2005	230
Figure 2.12-5: Transects Flown During Moose Survey, 2004	233
Figure 2.12-6: Esker Survey Location.....	239
Figure 2.12-7: Breeding Bird Survey Locations, 2005	244
Figure 3.1-1: Communities Located Near Yellowknife Gold Project.....	258
Figure 3.1-2: Yellowknife Historic and Projected Population, 1996 – 2024.....	260
Figure 3.1-3: Yellowknife Population by Age Group, 2009.....	261
Figure 3.1-4: Yellowknife Employment and Unemployment Rates, 1986 – 2009	262

Figure 3.1-5:	Yellowknife Educational Level, 1986 – 2009	263
Figure 3.1-6:	Yellowknife Participation in Traditional Activities, 1988 – 2008	264
Figure 3.1-7:	Yellowknife Households with More Than Six People, 1981 – 2009	265
Figure 3.1-8:	Yellowknife Crimes, 2000 – 2009	266
Figure 3.1-9:	Yellowknife Violent Crime and Property Crime Rates, 2000 – 2009	266
Figure 3.1-10:	Yellowknife Average Personal Income, 1998 – 2007	267
Figure 3.1-11:	Yellowknife Average Family Income, 1998 – 2007	267
Figure 3.2-1:	Dettah Historic and Projected Population, 1996 – 2024	269
Figure 3.2-2:	Dettah Population by Age Group, 2009	270
Figure 3.2-3:	Dettah Employment and Unemployment Rates, 1986 – 2009	271
Figure 3.2-4:	Dettah Educational Level, 1986 – 2009	272
Figure 3.2-5:	Dettah Participation in Traditional Activities, 1988 – 2008	273
Figure 3.2-6:	Dettah Households with More Than Six People, 1981 – 2009	274
Figure 3.3-1:	Behchoko Historic and Projected Population, 1996 – 2024	276
Figure 3.3-2:	Behchoko Population by Age Group, 2009	277
Figure 3.3-3:	Behchoko Employment and Unemployment Rates, 1986 – 2009	278
Figure 3.3-4:	Behchoko Educational Level, 1986 – 2009	279
Figure 3.3-5:	Behchoko Participation in Traditional Activities, 1988 – 2008	280
Figure 3.3-6:	Behchoko Households with More Than Six People, 1981 – 2009	281
Figure 3.3-7:	Behchoko Crimes, 2000 – 2009	282
Figure 3.3-8:	Behchoko Violent Crime and Property Crime Rates, 2000 – 2009	282
Figure 3.3-9:	Behchoko Average Personal Income, 1998 – 2007	283
Figure 3.3-10:	Behchoko Average Family Income, 1998 – 2007	283
Figure 3.4-1:	Gameti Historic and Projected Population, 1996 – 2024	284
Figure 3.4-2:	Gameti Population by Age Group, 2009	285
Figure 3.4-3:	Gameti Employment and Unemployment Rates, 1986 – 2009	286
Figure 3.4-4:	Gameti Educational Levels, 1986 – 2009	286
Figure 3.4-5:	Gameti Participation in Traditional Activities, 1988 – 2008	288
Figure 3.4-6:	Gameti Households with More Than Six People, 1981 – 2009	289

Figure 3.4-7:	Gameti Crimes, 2000 – 2009.....	290
Figure 3.4-8:	Gameti Violent Crime and Property Crime Rates, 2000 – 2009	290
Figure 3.4-9:	Gameti Average Personal Income, 1998 – 2007	291
Figure 3.4-10:	Gameti Average Family Income, 1998 – 2007	292
Figure 3.5-1:	Wekweeti Historic and Projected Population, 1996 – 2024	293
Figure 3.5-2:	Wekweeti Population by Age Group, 2009	294
Figure 3.5-3:	Wekweeti Employment and Unemployment Rates, 1986 – 2009	295
Figure 3.5-4:	Wekweeti Educational Level, 1986 – 2009	296
Figure 3.5-5:	Wekweeti Participation in Traditional Activities, 1988 – 2008	297
Figure 3.5-6:	Wekweeti Households with More Than Six People, 1981 – 2009	298
Figure 3.6-1:	Whati Historic and Projected Population, 1996 – 2024	299
Figure 3.6-2:	Whati Population by Age Group, 2009	300
Figure 3.6-3:	Whati Employment and Unemployment Rates, 1986 – 2009	301
Figure 3.6-4:	Whati Educational Level, 1986 – 2009	302
Figure 3.6-5:	Whati Participation in Traditional Activities, 1988 – 2008	303
Figure 3.6-6:	Whati Households with More Than Six People, 1981 – 2009	304
Figure 3.6-7:	Whati Crimes, 2000 – 2009	304
Figure 3.6-8:	Whati Violent Crime and Property Crime Rates, 2000 – 2009	305
Figure 3.6-9:	Whati Average Personal Income, 1998 – 2007	305
Figure 3.6-10:	Whati Average Family Income, 1998 – 2007	306
Figure 3.7-1:	Archaeological Investigations 2004/2005	308
Figure 3.7-2a	Areas of Archaeological Potential Along the Northern Portion of the Winter Road	309
Figure 3.7-2b	Areas of Archaeological Potential Along the Southern Portion of the Winter Road	310
Figure 3.8.1:	(Asserted) Traditional Territories	319
Figure 3.8-2:	YKDFN Preliminary Traditional Land Use Information	321
Figure 3.8-3:	North Slave Metis Alliance Traditional Land Use	325
Figure 4.1-1:	Ormsby Site Plan Full Build-out	327
Figure 4.1-2:	Nicholas Lake General Site Plan	328
Figure 4.3-1:	Winter Lake TCA Preferred Option	337

Figure 4.4-1:	Property Geology Map Ormsby Property	343
Figure 4.8-1:	Ormsby Pit Phases – Conceptual	352
Figure 4.8-2:	Ormsby Proposed Underground (Looking West) – Conceptual	353
Figure 4.8-3:	Nicholas Lake Proposed Underground (Looking Northwest) – Conceptual	354
Figure 4.8-4:	Longhole Drilling Sub-level Stoping – Conceptual	355
Figure 4.8-5:	Conceptual Longwall Mining Method	356
Figure 4.9-1:	Ormsby Preliminary Site Plan 1 Year of Mine Operations	359
Figure 4.10-1:	Mill Process Flowsheet Grinding and Flotation – Conceptual	361
Figure 4.10-2:	Mill Process Flowsheet Gold Leach and Recovery – Conceptual	362
Figure 4.10-3:	Merrill Crowe Circuit – Conceptual	363
Figure 4.11-1:	Conceptual Mill Building General Arrangement Floor Plan	366
Figure 4.11-2:	Conceptual Mill Building General Arrangement Sections	368
Figure 4.11-3:	Crushing Circuit – Conceptual	377
Figure 4.12-1:	Typical Cross Sections for West Dam	389
Figure 4.13-1:	Annual Water Balance 3,000 tpd Average Year	391
Figure 4.13-2:	Annual Water Balance 3,000 tpd 10 Year Wet	391
Figure 4.13-3:	Annual Water Balance 3,000 tpd 10 Year Dry	393
Figure 4.15-1:	Communities Located Near Yellowknife Gold Project	403
Figure 6.2.1:	Narrow Lake Drainage Pattern	423
Figure 6.2.2:	Nicholas Lake Development Site Drainage	428
Figure 6.2.3:	Narrow Lake Bathymetry, Inputs, and Model Grid	432
Figure 6.2.4:	Flow into Narrow Lake from the Tailings Containment Area and Narrow Lake Drainage Area	433
Figure 6.2.5:	Example of Modelled Temperature and Dilution in Narrow Lake July 1 of Year 2 - Stratified Conditions	435
Figure 6.2.6:	Modelled Surface and Bottom Temperatures in Narrow Lake	436
Figure 6.2.7:	Modelled Surface and Bottom Dilution in Narrow Lake	437
Figure 6.2.8:	Modelled Surface and Bottom Arsenic Concentration in Narrow Lake with TCA Concentration of 5.8 µg/L	437
Figure 6.3-1:	Recorded Giauque Lake Levels - Summer of 2009 and 2010	467

Figure 6.5-1:	Proposed Footprint Layout in the YGP Study Area	474
Figure 6.7-1:	Yellowknife Gold Project Air Quality Assessment Local Study Area.....	511
Figure 6.7-2:	Joint Frequency Distribution of Wind Direction and Wind Speed Observed at the Ormsby site from 2006 to 2009	518
Figure 6.7-3:	Local Study Area Showing Gridded Receptors (Blue Dots) and Discrete Receptors (Red Dots)	519
Figure 6.7-4:	Isopleths of Maximum Predicted One-Hour Average NO ₂ Concentrations	524
Figure 6.7-5:	Isopleths of Maximum Predicted One-Hour Average SO ₂ Concentrations	524
Figure 6.7-6:	Isopleths of Maximum Predicted One-Hour Average CO Concentrations	525
Figure 6.7-7:	Isopleths of Maximum Predicted 24-Hour Average TSP.....	525
Figure 6.7-8:	Isopleths of Maximum Predicted 24-Hour Average PM _{2.5}	526
Figure 6.7-9:	Isopleths of Maximum Predicted 30-day Average Dustfall Deposition Levels	526
Figure 10.3-1:	Spatial Boundary for Assessing Cumulative Effects on Terrestrial Resources	607
Figure 11.2-1:	Schematic Representations of Ormsby - Current Conditions	629
Figure 11.2-2:	Schematic Representations of Ormsby - Conclusion of Operations	630
Figure 11.2-3:	Schematic Representations of Ormsby - At Closure and One Year Following Closure	631
Figure 11.2-4:	Schematic Representations Ormsby - Five and 15 Years Following Closure.....	632
Figure 11.2-5:	Schematic Representations of Nicholas Lake - Current Conditions.....	633
Figure 11.2-6:	Schematic Representations of Nicholas Lake - Conclusion of Operations	634
Figure 11.2-7:	Schematic Representations of Nicholas Lake - At Closure and One Year Following Closure	635
Figure 11.2-8:	Schematic Representations Nicholas Lake - Five and 15 Years Following Closure.....	636

APPENDICES

Appendix A	Vegetation
Appendix B	Air, Climate, Hydrology, Noise
Appendix C	Water Quality
Appendix D	Fisheries
Appendix E	Wildlife
Appendix F	Heritage Resources
Appendix G	Public Consultation and Socio-Economic Documentation
Appendix H	Acid Rock Drainage
Appendix I	Hydrogeological Modelling
Appendix J	Surface Effluent Testing
Appendix K	Tyhee NWT Corp Hazardous Material Spill Contingency Plan
Appendix L	Tailings Alternatives Assessment
Appendix M	Reports for 2005 to 2010 Geotechnical Inspections of Airstrip, Apron and Access Road for Yellowknife Gold Project
Appendix N	Diesel Generation Power Requirements for Yellowknife Gold Project
Appendix O	Specification Sheet for ECO Waste Solutions Incinerators
Appendix P	Water Balance Climate and Hydrological Analyses
Appendix Q	Granular Material Assessment, Yellowknife Gold Project, NT. Report Prepared by EBA Engineering Consultants Ltd. for Tyhee NWT Corp, November 2008